Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Hour: \_\_\_\_\_\_\_

**Bikini Bottom Genetics**

1. Write whether each genotype below is homozygous dominant (HD), homozygous recessive (HR), or heterozygous (Het).

TT \_\_\_\_\_\_\_\_ Bb \_\_\_\_\_\_\_\_ DD \_\_\_\_\_\_\_\_ Ff \_\_\_\_\_\_\_\_ tt \_\_\_\_\_\_\_\_ dd \_\_\_\_\_\_\_\_

Dd \_\_\_\_\_\_\_\_ ff \_\_\_\_\_\_\_\_ Tt \_\_\_\_\_\_\_\_ bb \_\_\_\_\_\_\_\_ BB \_\_\_\_\_\_\_\_ FF \_\_\_\_\_\_\_\_

1. Write the correct *phenotype* for each genotype using the information provided.

**[](http://www.google.com/imgres?q=spongebob&um=1&hl=en&sa=N&rls=com.microsoft:en-us&biw=792&bih=439&tbm=isch&tbnid=sW96UX4P8uhG2M:&imgrefurl=http://www.wavplanet.com/wavs.php?cat=2&subcat=333&docid=yWlJq_wxTa0wXM&imgurl=http://www.wavplanet.com/spongebob_1.jpg&w=288&h=302&ei=oDniTo_CAsmw2QWTuICrBA&zoom=1&iact=rc&dur=32&sig=104335431340358463542&page=3&tbnh=98&tbnw=93&start=22&ndsp=11&ved=1t:429,r:0,s:22&tx=52&ty=53)**Trait = Eye color: **Brown is dominant to Green**

BB = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Bb = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

bb = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Trait = Body shape**: Square is dominant to Round**

RR = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Rr = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

rr = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



1. For each phenotype, write the *genotype(s)* that are possible for Patrick.

**\*Hint**: Use *all three* possible genotypes **(ex. TT, Tt, and tt)**

Trait = Head: **A tall head (T) is dominant to short (t)**

Tall head = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Short head = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Trait = Body color: **Pink body color (D) is dominant to yellow (d).**

Pink body = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Yellow body = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. SpongeBob Squarepants recently met SpongeSuzie Roundpants at a dance. SpongeBob is **heterozygous** for his square shape, but SpongeSuzie is **round**, which is **recessive**. Finish the Punnett square to show what might happen if SpongeBob and SpongeSuzie have children. Use R or r. (Hint: See question #2!)

**Genotypes Chance of Genotypes**

RR \_\_\_\_ out of 4 (\_\_\_\_\_\_%)

rr \_\_\_\_ out of 4 (\_\_\_\_\_\_%)

Rr \_\_\_\_ out of 4 (\_\_\_\_\_\_%)

**Phenotypes:**

What are the chances that the offspring will have a **square shape**? \_\_\_\_\_ out of 4 (\_\_\_\_\_\_\_%).

What are the chances that the offspring will have a **round shape**? \_\_\_\_\_ out of 4 (\_\_\_\_\_\_\_%).

1. Patrick met Patti at the dance. Both of them are **heterozygous** for their dominant pink body color (yellow body color is recessive). Create a Punnett Square to show the possibilities that would result if Patrick and Patti had children. Use the letter D or d. (Hint: See Question #3!)

**Genotypes Chance of Genotypes**

DD \_\_\_\_ out of 4 (\_\_\_\_\_\_%)

dd \_\_\_\_ out of 4 (\_\_\_\_\_\_%)

Dd \_\_\_\_ out of 4 (\_\_\_\_\_\_%)

**Phenotypes:**

What are the chances that the offspring will have a **pink body**? \_\_\_\_\_ out of 4 (\_\_\_\_\_\_\_%).

What are the chances that the offspring will have a **yellow body**? \_\_\_\_\_ out of 4 (\_\_\_\_\_\_\_%).

1. Everyone in Squidward’s family has blue skin, which is the dominant trait for body color in his hometown of Squid Valley. His family brags that they are all homozygous. He recently married a nice girl who has green skin, which is recessive. Create a Punnett square to show the possibilities that would result if Squidward and his new bride had children. Use B or b.

**Genotypes Chance of Genotypes**

BB \_\_\_\_ out of 4 (\_\_\_\_\_\_%)

bb \_\_\_\_ out of 4 (\_\_\_\_\_\_%)

Bb \_\_\_\_ out of 4 (\_\_\_\_\_\_%)

**Phenotypes:**

What are the chances that the offspring will have **blue skin**? \_\_\_\_\_ out of 4 (\_\_\_\_\_\_\_%).

What are the chances that the offspring will have **green skin**? \_\_\_\_\_ out of 4 (\_\_\_\_\_\_\_%).

1. **Challenge:** Mr. Krabbs and his wife recently had Lil’ Krabby. Mrs. Krabbs

has been upset since she first saw her new baby who had short eyeballs. She thinks the hospital goofed and mixed up her baby with somebody else’s. Mr. Krabbs is homozygous for his tall eyeballs, while his wife is heterozygous for her *tall eyeballs*. **Did the hospital make a mistake?** Prove your answer with a Punnett Square. Use T or t.

**Circe one:** YES or NO **EXPLAIN:**